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# Pattern-design software of automated control systems

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## Abstract

© 2016 IEEE.The method of pattern design of industrial control system (ICS) software has been developed. As objects of lower hierarchy level, the elements of automation were selected. The unified algorithms of data processing and computing control actions were applied for these elements. The data types, data storage and functionality were defined for these objects. In the software of human-machine interface and controller, the correlated structure types were applied. The data blocks in the form of one-dimensional array user-defined type were used for storage. The correspondence of the structure tag to element of array in data block was defined. The data exchange over control system network is independent on the number of sensors and actuators. The template projects for development of software with Siemens hardware and software were created on the basis of proposed method. The structure of the template projects makes it easy to adapt them to the requirements of a particular control system. The template projects greatly reduce time needed for ICS software development and require less programming skills. A universal approach of the proposed method allows using the pattern-design on the automation of various industrial processes.

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## Keywords

automation, control system, pattern-design, software, supervisory control

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